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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
|-----------------|-------------|----------------------|---------------------|------------------|

10/574,541

04/26/2006

Dieter Stroh

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EXAMINER

PATEL, DEVANG R

ART UNIT

PAPER NUMBER

4111

MAIL DATE

DELIVERY MODE

01/31/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

| | | | |
|------------------------------|--------------------------------------|-------------------------------------|--|
| Office Action Summary | Application No. 10/574,541 | Applicant(s) STROH ET AL. | |
| | Examiner DEVANG PATEL | Art Unit 4111 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 26 April 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-13 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-13 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 04 April 2006 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>6/27/06</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Drawings

2. Figure 1 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.
4. **Claims 5, 7, 9-10, and 12** are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Appropriate corrections are required.
 - a. Regarding claim 5, the limitation "starting in the direction of the sonotrode's longitudinal axis *incrementally* over the front surface" is indefinite because it is ambiguous what is meant by incrementally. Is the reinforcement

thickness changed incrementally? The Examiner reads the claim to imply that the reinforcement protrudes from the peripheral edge of the front surface in accordance with broadest reasonable interpretation.

b. Regarding claims 7 and 9-10, the phrase “reinforcement is trained” is indefinite because it is not clear what is meant by *trained*. The examiner interprets the term *trained* to be equivalent of *shaped* (i.e. “reinforcement is shaped in a linear manner”).

c. Regarding claim 12, the language “ $3\text{ mm} < d < 25\text{ mm}$, preferably $5\text{ mm} < d < 15\text{ mm}$ ” is indefinite because it fails to distinctly claim the reinforcement thickness. A broad range or limitation together with a narrow range or limitation that falls within the broad range (in the same claim) is considered indefinite since the resulting claim fails to set forth the metes and bounds of the claim. See MPEP 2173.05 (c). The Examiner takes the range to be $3\text{ mm} < d < 25\text{ mm}$ in accordance with broadest reasonable interpretation.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. **Claims 1, 3, and 6-10** are rejected under 35 U.S.C. 102(b) as being anticipated by Tamamoto (JP 10202752 A).

- d. Regarding claim 1, Tamamoto discloses an ultrasonic welding device in the form of a horn 14 (i.e. sonotrode) in Fig. 4. Feature 14' represents the working surface, which is perpendicular to the horn's longitudinal axis and a reinforcement element is shown on the front surface of 14'. The front surface runs perpendicular to the working surface and includes reinforcement. The design of the device protects the horn from being deflected (English abstract).
- e. As to claim 3, the term "rib" is defined to be "an elongated ridge" (Merriam-Webster dictionary) and accordingly, the reinforcement of Tamamoto is a rib.
- f. As to claim 6, the reinforcement of Tamamoto runs perpendicular to the working surface.
- g. As to claim 8, Tamamoto's reinforcement projects from essentially entire front surface.
- h. As to claim 9, the reinforcement of Tamamoto is shaped symmetrically with respect to the horn's longitudinal axis.
- i. As best understood in view of the 112, 2nd rejection above, the limitations of claims 7 & 10 is met by the reinforcement of Tamamoto which resembles a beam in a linear manner.

Claim Rejections - 35 USC § 103

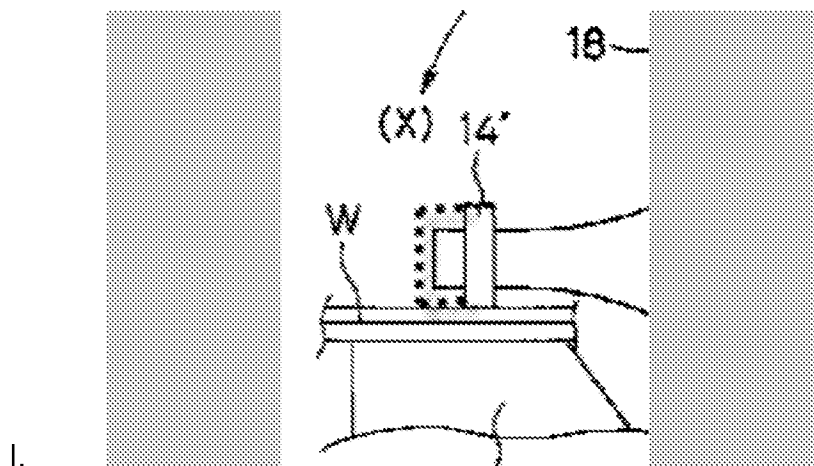
7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. **Claims 4 and 5** are rejected under 35 U.S.C. 103(a) as being unpatentable over Tamamoto as applied to claim 1 above.

j. Regarding claim 4, Tamamoto does not disclose the reinforcement having triangle geometry. However, there are only a finite number of practical geometric shapes for the protrusion (about 10) such as rectangular, circular, curved, triangular, cone-shaped, pyramid, polygon, or any combination of these. Moreover, whether the reinforcing geometry is triangular, rectangular or other configurations, a substantially the same desired and expected result of providing reinforcing to the sonotrode would have been achieved. Therefore, it would have been obvious to a person of ordinary skill in the art to have tried a suitable geometry from the above and the resulting structure would have yielded a predictable result of simply providing reinforcement to a sonotrode to reduce the deflection of the working surface.

k. As best understood in view of the 112, 2nd rejection above, Tamamoto's reinforcement protrudes from peripheral edge of the front surface. It would have been obvious to have the reinforcement protrude from entire front surface as shown by the dotted line below, and this would include the edge of the working surface as well. Such would have been obvious because there are only a finite number of predictable projection manners (partial surface, multiple reinforcements from partial surfaces, or entire surface), and a person of ordinary skill in the art would have selected any one of above to minimize undesirable deflection.



9. **Claims 11-13** are rejected under 35 U.S.C. 103(a) as being unpatentable over Tamamoto as applied to claim 1 above, and in view of Ehlert et al. (US 2003/0111513 A1).

m. Tamamoto does not disclose the deflection ratio of the horn or the reinforcement thickness over the front surface. Ehlert et al. (drawn to rotary ultrasonic horn) discloses an ultrasonic horn member 28 and an isolation member 42 that is similar to reinforcement. The rotatable horn member exhibits a very low static deflection of 0.025 mm or less when subjected to a static force of 445 N (para. 67). Ehlert further discloses that the length, thickness, elastic modulus and other parameters can be selected and configured to provide the operative bending and fatigue resistance of the axial isolation component (para. 53). It would have been obvious to one of ordinary skill in the art at the time of the invention to choose the instantly claimed ranges of $3 < a_z/a_y < 20$ and reinforcement extension of 3-25 mm through process optimization, since it has been held that where the general conditions of a claim are disclosed in the prior

art, discovering the optimum or workable ranges involves only routine skill in the art. See In re Boesch, 205 USPQ 215 (CCPA 1980).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to DEVANG PATEL whose telephone number is (571)270-3636. The examiner can normally be reached on Monday thru Thursday, 8:00 am to 5:30 pm, EST..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sam Yao can be reached on 571-272-1224. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

DP

/Sam Chuan C. Yao/
Supervisory Patent Examiner, Art Unit 4111

Application/Control Number:
10/574,541
Art Unit: 4111